Attributes of Climate Fiction: A Critical Study of Select works of Margaret Atwood, J.G. Ballard, Barbara Kingsolver and Kim Stanley Robinson

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INTRODUCTION:

Literature has been a medium to study the interaction between the human and non-human world. Climate Fiction the recent literary genre is relatively new coinage in the lines of earlier various literary genres that incorporated environmental concerns in them e.g. from pastoral to nature, from nature to eco fiction, and from eco-fiction to postcolonial climate fiction. Writers in earlier times glorified nature. The serenity, peace, and aesthetic pleasures were mainly the subjects writers derived from nature. Man with the scientific advancements became greedy and started interfering with environment as it is reflected in the works of some Romantic Era writers, because until then environmental concerns were not prominent in the literary works as there was a proper order found in the natural world. The below lines from Wordsworth's poem throw light on how then the environmental concerns crept in and how should be the relation between human beings and nature.

> Knowing that nature never did betray
> the heart that loved her; tis is her privilege,
> Through all the years of this our life,
> lead from joy to joy...(122-125)

William Wordsworth addresses above lines to his sister but also it is an universal appeal to entire mankind. He understands that the nature has capacity to heal if a man treats her as a friend. Nature works as a source of treatment to all the ailments of human beings. Andrew Lallier describes William Blake's prophetic poem Milton (written 1804-10), the poem that juxtaposes two radically different images: one of "dark satanic mills" and another of "England's green & pleasant land." The former image is often read as a commentary on the early developments of the industrial revolution. It was just the beginning to pay attention towards the connection between man and physical world that surrounds him. Owing to industrialization and scientific inventions the planet earth is surrounded by mammoth environmental problems and as a consequence climate change. There are so many environmental problems due to the human interference in established ecosystems and

encroachment in the natural world under the name of development. Today, Wordsworth's above lines are relevant when we see, hear, and experience the manmade and natural disasters like global warming, melting glaciers, deforestation, chemical pollution, oil spills, industrial catastrophe to name a few. Human beings are helpless amidst these natural and manmade calamities as they are counterproductive in the process of human development. Man has made astonishing development in every field, but compensated for natural imbalance of ecosystem wherein he lives. Technological advancements, growing economies, growing industrial belts, over population etc. are adding to the existing environmental problems. To let someone feel the intensity of the problems, below manmade disasters are the evidennce as due to the interference of human activities these problems crept in.

A few environmental problems are nowhere noted, but everybody is familiar with them. If an aged person is asked to tell how was that person's childhood few years ago, one will probably get a vivid description about abundance of water, plants, trees, fresh vegetables, birds and animals, peace he once lived in. Now things changed drastically, degeneration of natural resources led the Man to face the harsh realities and difficulties citizens are facing due to the scarcity of water. The villagers have to stand in long queues for water, fresh water supply in many small towns is done alternatively on 15 to 30 days There is very low rain fall recorded consecutively for years in row. If this has been a scenario in case of men, then better not think about conditions of animals. These are not the natural disasters, rather they are manmade. Deforestation and lack of awareness about water conservation and plantation is the main cause behind it.

Below mentioned are a few manmade disasters Wright, Audrey has mentioned in her online blog on A Medium Corporation which are worth discussing here because all these incidents happened in the world where we live over the last three decades:

1. The Bhopal Gas Leak: In 1984, a pesticide plant in Bhopal, India, resealed 30 metric tons of methyl isocyanite into the atmosphere. The Union Carbide India Limited chemical plant was in extremely poor condition and had broken dozens of safety regulations years before the accident. However, the errors accumulated in time and on the night of December the third, a safety release system activated and emptied a storage tank in the air, in order to prevent a huge chemical explosion. The release spread highly toxic chemicals over Bhopal and the neighbouring areas. Official death count by the Indian government is 3,787 bodies, however, unofficial records state 8,000 deaths or more tied to the disaster.

2. The Minamata disease: The Minamata disease was discovered in the mid twentieth century in Minamata Bay, Japan, hence the name. It's a neurological degradation, caused by organic mercury poisoning. It was discovered the sick had a mortality rate of 36.7 percent—a truly dreadful figure. This attracted international attention and large scale researches began. Ultimately, it was found the waters in Minamata Bay, it's fish and everybody in contact had a period of 34 years of exposure to lead, mercury, manganese, arsenic, thallium and copper—all highly toxic heavy metals. Turns out, the nearby chemical factory, owned by the Chisso corporation, was dumping it's contaminated waste water directly into the bay.The corporation officially certified 2,265 victims most of which already dead in March, 2001. However, the total death toll is probably much higher. Unfortunately, they have certificates now to show for their suffering.

3. The Libby Montana Asbestos Contamination: The toxic material was one of the by-products of the mines and plant operations. As a result, it was constantly pumped out of the industrial chimneys and continued to cover the town until 1990, when the mine was closed. Even though, by that time, asbestos had pretty much soaked into the very existence of the residence. Along the particles transmitted by the smoke, excess materials were used as fill for driveways, gardens and playgrounds. Even the school track was made from tailings provided by the plant. The pollution accounts for 200 deaths and thousands of illnesses throughout the inhabitants. Now, the entire area is announced as contaminated and warning signs are put all over to avert people from further health danger.

4.Chernobyl: Chernobyl used to be a nuclear power plant near Pripryat, Ukraine. In 1986, an explosion, caused by poor management, cracked open one of the plant's nuclear reactors and leaked large quantities of radioactive particles into the atmosphere. The residents were evacuated immediately; however, long therm effects of the exposure still appear to this day. In the accident itself died 31 people, but each year hundreds of birth malformation and radiation-related illnesses add to the death toll. The town is now nothing more that a dead, ghostly monument to remind us of our mistakes.

5. The Guiya E-Waste Dump in China: The Guiyu dump in China is the biggest e-waste landfill in the world. A total of 52 square kilometres of land is buried in iPhones, Galaxy S4s and other famous electronic devices. Even though of e-waste can't possibly compare in size with world garbage, it contains the intimidating amount of 70% of all heavy metals in the landfills. In time, they leak out of the appliances and guess what, end up in the land, air and water. Pretty much all of the surrounding area and especially the rice supplies are exposed to lead poisoning. Guiyu's children have a 54 percent higher lead levels in their blood

than those of the nearby town Chendian. On top of that, the methods of disposal and reprocessing are highly outdated. Some include literally burning the piles of electronics to retrieve precious metals, which furthermore pollutes the area. Soil samples from a Guiyu workshop show 371 times more lead and 115 times more copper in comparison to samples taken 30 kilometres away.

6. The Deepwater Horizon Oil Spill: Considered the worst oil spill in history, on April, the twentieth, 2010, the Deepwater Horizon oil rig exploded and sank in the sea. This left the drill hole completely open and petrol began to blow out directly into the waters, much like a gun wound in the chest. It ultimately discharged 780,000 cubic metres of oil in the Gulf of Mexico, while claimed seven lives. The spill threatened 8,332 marine species, some of which, already endangered and under federal protection. In the following years and on-going, scientists continue to pile up reports of the catastrophic effects. It's described as the biggest health crisis in the US.

There are government and non-government organizations worldwide who are taking efforts for sustainable development and to mitigate environmental problems which the entire world is facing now a day in one or the other form. The Intergovernmental Panel on Climate Change (IPCC) is an intergovernmental body of the United Nations, dedicated to providing the world with an objective, scientific view of climate change, its natural, political and economic impacts and risks, and possible response options. Delhi Greens is a non-governmental organisation, founded by the trio Ravinder Bawa, Aastha Kukreti, and Govind Singh, for spreading the messages of green environment and sustainable development and working towards achieving those goals. The organisation is headquartered in New Delhi, India. Pani Foundation is another active non-governmental organization in India which has been dealing with water conservation in different draught affected areas in Maharashtra. Literature on the other hand has been glorifying nature and pointing at present affairs of human and its effects on nature, and possible consequences that may affect both living and non-living entities and consequently the Earth. But reflecting on works of imagination may intensify concern about the consequences and may find possible actions and alternatives to them.

SIGNIFICANCE OF THE STUDY:

There is no dearth of non-fiction on environmental issues. The newspaper articles, magazines come with such issues every now and then. The problem is who reads it. On the other hand fiction let us feel the world around us, by weaving life events into story and who does not want to read it. In the 21st century environmental concerns have become central themes in many fictions. As literature depicts the societal issues, environmental issues are not separate from social life. They are more prominent than ever before. For the undertaken research novels of the authors who are major, for they have international recognition and helped shape the Climate Fiction genre through post-apocalyptic, dystopian, ecological, and ecological solutions which intensify the climate change effects by presenting the current and future environmental scenarios across the world. It lets the reader visualise environmental concerns which are part of everybody's life. There are many articles, blogs written around Climate Fiction genre which has also discussed about its utility in literature classrooms. Thus, Climate Fiction does provide a different experience and impact while spreading awareness about environmental concerns. This new genre spreads awareness among readers not only in literary class but also among general readers who keep interest in environmental studies.

OBJECTIVES OF THE STUDY:

1. To study the attributes of climate fiction.
2. To study Climate Fiction as literary genre in addressing environmental issues from eco-critical perspective.
3. To study the select novels from post-apocalyptic perspective.
4. To study the select novels from dystopian, ecological perspective.
5. To explore the possible online data to depict growing environmental concerns through fiction among the readers.

HYPOTHESIS:

1. Climate Fictions use post-apocalyptic, dystopian, ecological forms and also provide solutions to environmental imbalance which intensifies the sensibility of reader.
2. The focus on present and future environmental problems in Climate Fiction brings about change in the perception of reader regarding necessity of co-existence.
3. Readers enjoy fiction so in general they do enjoy Climate fiction.
4. Readers can better understand their responsibilities towards sustainable development through Climate Fiction compared to non-fiction and other means of communication.
5. Attributes of climate fiction like post-apocalyptic, ecological presentation, and scientific solutions to environmental concerns establishes it as literary genre.

LITERATURE REVIEW:

Environmental concerns became more prominent in various forms of Literature. To stress the inclusion of such issues in literature one has to go back to the romantic poetry wherein the effect of industrialization in the form of urbanization is felt through the poetry of Wordsworth in his Tintern Abbey he has portrayed the modern life divorced from nature as he writes:

> Through a long absence, have not been to me
> As is a landscape to a blind man's eye:
> But oft, in lonely rooms,and'mid the
> din Of towns and cities, that owned to them.
> In hours of weariness, sensation sweat,(22-27)

Almost till the Romantic period writers appreciated nature in the then popular literary forms. In later days after the publication of Charles Darwin's On the Origin of Species scientists, biologists started looking at these concerns from environmental window. Across the 19th century various new studies, concepts emerged. E.g. " Ecology" this term is coined by Ernst Haeckel a German biologist and naturalist. Ecology, Haeckel explained, was to be an 'entire science' in and of itself and would provide an image of the 'household of

nature.'(Parkins, W. and Adkins, P. 2018). Haeckel saw ecology as offspring an explanation of the world through relationality, continuity, and ultimately, unity. Victorian literature such as the novels of Thomas Hardy or the poetry of Tennyson clearly engages with what the ecocritic Timothy Clark has described in Ecocriticism on the Edge as the fundamental challenge to the representation posed by the Anthropocene's inhuman, planetary scales of space and time(pp.30-31). For Clark, who reads Tennyson's portrayal of nature in 'Tithonus'(1860) back through the Anthropocene, the tension between human meaning and inhuman materiality speaks to an unsettling and irreducible dissonance between how we make sense of the world and the world itself (pp.42-44). For Mortan, an Anthropocene means that 'ontotheological statement about which thing is most real (ecosystem, world, environment or conversely, indivisual become impossible'(Hyperobjects,p.19). In Mortan's view Scientific discovery, technological development, industrial acceleration, and imperial expansion bears responsibility for having produced the Anthropocene. Approaching Victorian literature through the concept of the Anthropocene enables us to engage in urgent ecological dialogues across the historical divide between 'then' and 'now' which, instead of shying away from the gap between our present understanding of environmental concerns and the Victorian past, embraces it. It is an approach that both historicizes and theorizes its objects of study and, as all of the articles in the issue demonstrate, enables new knowledge of both the Victorian period and our own moment. The environmental issues that started affecting social life and on the other hand growing population, urbanization, cultural politics, growing economies started putting pressure on natural resources. This is how the man and the world surrounds him interact with one another. Rachel Carson's Silent Spring is such publication which drew attention towards hazards of pesticide and in a true sense closely examined the environmental issue. In the last quarter of 20th century eco-fiction flourished the notable work is The Monkey Wrench Gang by Edward Abby (1975).

Environmental concerns have become so serious now a days that in the form of panel discussions, debates, and even by forming some literary circles these issues are being put forth. In her article Meghaa Aggarval writes : "Prominent voices, such as M Krishnan, Ramachandra Guha, Madhav Gadgil, Amitav Ghosh and Mahesh Rangarajan have greatly enriched and impacted literature on the environment, while literary festivals, such as Tata Literary Live and the Jaipur Literature Festival, regularly feature discussions and panels on ecology, nature, and conservation. For example, the World Book Fair in Delhi this year was

themed on environmental issues such as climate change, global warming and water pollution."

Sustainable development is need of the hour. Natural resources are being overused owing to the natural calamities. It seems that Man is challenging the nature and over the years has interfered ecosystem. There's no shortage of nonfiction which included environmental issues but fiction has the power to open eyes and hearts in completely different ways. If you don't believe the oceans are in trouble, for example, you're not likely to pick up a nonfiction book that outlines exactly that. But if you like shipwrecks, maybe you'll read a novel focused on a maritime disaster and in the process come to understand the plight of not only the people on the sinking ship but the penguins and other animals surrounding them. In a February 2015 feature for *The Guardian*, the cli-fi author Sarah Holding wrote that the genre "reconnects young readers with their environment, helping them to value it more, especially when today, a large amount of their time is spent in the virtual world" (Ullrich J.).

The undertaken research considers select novels of Barbara Kingsolver, J.G. Ballard Margaret Atwood, and Kim Stanley Robinson to study the blend of Dystopian, ecological, post-apocalyptic, and possible mitigation to climate change made through scientific inventions. Below are the summaries taken from various sources that in a nut shell gives the complete idea about Climate Fiction.

Midge Raymond summarizes in an article she has written on Literary Hub that Flight Behavior by Barbara Kingsolver skilfully blends science and story, addressing climate change through the eyes of a woman whose small-town world is broken wide open by a bizarre act of nature. Dellarobia Turnbow, married at 17 because of a pregnancy in which she lost the baby, is a decade later still married, tied to her two young children and her husband's family farm. She escapes emotionally through wild crushes on various men—and one day, planning to go through with an affair, she heads into the mountains for the rendezvous, only to discover a vast population of monarch butterflies. Their arrival, to the locals, signifies a miracle of God; to the scientific community, it's a sign of ecological disaster. Dellarobia is drawn into the wider world of the monarchs and the global implications for their sudden and unexplained arrival in her town. With both page-turning tension and great empathy, Kingsolver portrays the implications of a changing planet and its reverberations upon an entire family.

Katya Arapnakova described Atwood's triology togetherly in her article published in Library online Catalogue through the post-apocalyptic and dystopian themes following way. Oryx and Crake is at once an unforgettable love story and a compelling vision of the future. Snowman, known as Jimmy before mankind was overwhelmed by a plague, is struggling to survive in a world where he may be the last human, and mourning the loss of his best friend, Crake, and the beautiful and elusive Oryx whom they both loved. In search of answers, Snowman embarks on a journey–with the help of the green-eyed Children of Crake–through the lush wilderness that was so recently a great city, until powerful corporations took mankind on an uncontrolled genetic engineering ride. Margaret Atwood projects us into a near future that is both all too familiar and beyond our imagining. Set in the visionary future of Atwood's acclaimed Oryx and Crake, The Year of the Flood is at once a moving tale of lasting friendship and a landmark work of speculative fiction. In this second book of the MaddAddam trilogy, the long feared waterless flood has occurred, altering Earth as we know it and obliterating most human life. Among the survivors are Ren, a young trapeze dancer locked inside the high-end sex club Scales and Tails, and Toby, who is barricaded inside a luxurious spa. Amid shadowy, corrupt ruling powers and new, gene-spliced life forms, Ren and Toby will have to decide on their next move, but they can't stay locked away.In this final volume of the internationally celebrated MaddAddam trilogy, the Waterless Flood pandemic has wiped out most of the population. Toby is part of a small band of survivors, along with the Children of Crake: the gentle, bioengineered quasi-human species who will inherit this new earth. As Toby explains their origins to the curious Crakers, her tales cohere into a luminous oral history that sets down humanity's past—and points toward its future. Blending action, humor, romance, and an imagination at once dazzlingly inventive and grounded in a recognizable world, MaddAddam is vintage Atwood—a moving and dramatic conclusion to her epic work of speculative fiction.

Mason, Everdeen summarizes Kim Stanley Robinson's New York 2140. She says the novel explores the lives of several residents of an apartment building in Manhattan after global warming has caused almost all of the world's coastlines to go underwater. The novel follows the adventures of seven characters; each one intricately describes how society would change in a major natural disaster. Robinson covers all his bases: the science behind what caused the rise in the tides, the potential consequences to the U.S. economy, even the ins and

outs of how to grow food with vastly diminished resources. The book is a strange hybrid. It has the tenacious, encyclopedic detail that Robinson is known for, the big ideas of a modern climate fiction novel and the twists and turns of a heist movie. The characters are memorable, particularly the two orphan boys and the Internet video star, Amelia. It all comes together (perhaps a little too) beautifully in the end. Anyone familiar with Robinson's work knows that he can be tedious and heavy-handed, and this novel is no exception. But like the others, the thought-provoking ideas and vivid details make the book worth reading.

J. G. Ballard depicted in The Drowned World as a post-apocalyptic future in which global warming has caused the majority of the earth a place difficult to live. The story follows a team of scientists researching ongoing environmental developments in a flooded, abandoned London.

To sum up Climate fiction as a literary genre is not confined to one of the environmental themes rather through speculations throw light on existing environmental problems, project future and also come up with possible solutions to mitigate such problems.

RESEARCH METHODOLOGY:

This research would be consisting of close reading, interpreting and in depth analysis of primary sources of all the climate fictions considered for the study. It will be supported by secondary sources that throw more light upon ecological, post-apocalyptic, presentation of climate change solution in literary works and its interpretation as a distinct genre under the umbrella term eco-criticism. The approach would be interdisciplinary and would be consulting the scientific matter to understand the post-apocalyptic and scientific views**.** Data analysis from online surveys available would be presented.

TENTATIVE CHAPTER SCHEME:

1. Introduction.
2. Climate Fiction as a Genre.
3. Post-apocalyptic, Dystopian perspective in the fiction of Margaret Atwood and J.G.Ballard.
4. Ecological perspective in the fiction of Barbara Kingsolver and Kim Stanley Robinson.
5. Conclusion.

1. Introduction

This chapter will set the background for the proposed research idea by drawing attention towards environmental problems. The author also intends to give proper literature review as to know exactly how the environmental issues been dealt in various forms of literature and more specifically the Climate Fiction as new genre. This chapter also gives detail account of eco-criticism.

2. Climate Fiction as a Genre:

This chapter will deal with the climate change and its effect on living and non-living organism in the world, amidst of all the environmental concerns what changes climate fiction is bringing about in perceptions of the common reader. What are the reviews of readers, magazines (this body of literature has been discussed by a variety of publications, including *The New York Times*, *The Guardian,* and *Dissent* magazine, among other international media outlets) about it. What steps are being taken to spread awareness about this new genre both in literary circle and common public in general.

3. The second chapter entitled, "Post-apocalyptic and Dystopian issues in Maddaddam Trilogy and The Drowned World" would be interpreting how apocalyptic and dystopian themes been used by authors in select works by reviewing other notable practitioners to better understand such themes.

4. Ecological perspective in Flight Behavior, and New York 2140:

In this third chapter would be interpret Barbara Kingsolver's Flight Behaviour and Kim Stanley Robinson's New York 2140 from different ecological perspective. One dealing

with ecological co-existence and the other with scientific solutions to climate change respectively.

5. Conclusion:

This chapter's focus would be on presenting importance of subject matter and the select fiction and its impact on the fiction readers in general and climate fiction readers in specific.

CONCLUSION:

Literature has been playing major role in bringing about changes in perception of people regarding the social problems through various literary devices by spreading awareness to intensify appeal of the subject to the reader. Environmental problems over the last few decades have grown wider and they are not separate from our society. To conclude, in the undertaken study an attempt has been made through the select fiction which contains different themes that portray of possible environmental effects on human life through post-apocalyptic, dystopian, and ecological concerns which may be further studied in film studies.

BIBLIOGRAPHY:

PRIMARY SOURCES:

1. Atwood, Margaret. *Oryx and Crake*. Toronto: McClelland & Stewart, 2003.

2. Atwood, Margaret. *The year of the flood*. London New York: Bloomsbury, 2009.

3. Atwood, Margaret. *MaddAddam : a novel*. New York: Nan A. Talese/Doubleday, 2013.

4. Ballard, J. G. *The drowned world*. London: Harper Perennial, 2006.

5. Kingsolver, Barbara. *Flight behavior : a novel*. New York: Harper, 2012.

6. Robinson, Kim S. *New York 2140*. New York: Orbit, 2018.

SECONDARY SOURCES:

1. Aggarwal, Meghaa. "Taking Nature out of Literary Margines." *The Hindu Businessline*, 9 May, 2019, www.thehindubusinessline.com/blink/cover/taking-nature-out-of-literary-margins/article24054650.ece.

2. Arapnakova, Katya. "Environmental problems in world's literature–list of literary works compiled by UNCCD Library." *Library Online Catalogue*, 2015, library.unccd.int/Details/fullCatalogue/600000017.

3. Bloom, Dan. " Cli-Fi Reaches into Literature Classrooms Worldwide." *Inter Press Service News Agency*, 7 May, 2019, www.ipsnews.net/2015/03/cli-fi-reaches-into-literature-classrooms-worldwide/.

4. Buell, Lawrence. *The future of environmental criticism : environmental crisis and literary imagination*. Malden, MA: Blackwell Pub, 2005. Print.

5. Climate Change: A Moral, Ethical, and Economical Imperative. *UN News*, 9 May, 2019, news.un.org/en/story/2019/05/1038231.

    a. Dr. Mundra, R. "*William Wordsworth Selected Poems*." Bareilly: Prakash Book Depot,1996

6. Eco-Fiction Honorable Mention: NATURE'S CONFESSION. *Harvard Square Editions*, 10 May, 2019, harvardsquareeditions.org/awards-recognition/eco-fiction-honorable-mention-natures-confession/.

7. Garrard, Greg. *Ecocriticism*. New York: Routledge, 2004.Print.

8. Glass, Rodge. " *Global Warming:The Rise of Cli-Fi." The Guardian*, 8 May, 2019, www.theguardian.com/books/2013/may/31/global-warning-rise-cli-fi.

9. Haeckel, quoted in K. Friederichs, 'A Definition of Ecology and Some Thoughts about Basic Concepts', *Ecology*, 39 (1958), 154–59 (p. 154).

10. Lallier, Andrew. "Environmentalism and British Romanticism." *Romantic Politics*, Retrieved on 18 May, 2019, web.utk.edu/~gerard/romanticpolitics/ecology.

11. Mason, Everdeen. "Kim Stanley Robinson's 'New York 2140' and other new scifi and fantasy releases in March." *The Washington Post*, 8 March, 2017, www.washingtonpost.com/entertainment/books/best-science-fiction-and-fantasy-books-to-read-in-march/2017/03/07/.

12. Mortan, Tiothy. "*Victorian Hyperobjects."*, Nineteenth-Century Contexts, 36 (2014), 489-500 (pp. 489-90) .

13. Parkins, W. and Adkins, P. "Introduction: Victorian Ecology and the Anthropocene." Interdisciplinary Studies in the Long Nineteenth Century, issue 26, no. 19 2018, doi.org/10.16995/ntn.818.

14. Raymond, Midge. "5 Important Works of Eco-Fiction You Need to Read." *Literary Hub*, 22 June, 2016, lithub.com/5-important-works-of-eco-fiction-you-need-to-read/.

15. Rebecca, Tuhus-Dubro. "Cli-Fi Birth of a Genre." *Dissent Magazine*, 2013, www.dissentmagazine.org/article/cli-fi-birth-of-a-genre.

16. Ullrich, J. "Climate Fiction: Can Books Save the Planet?" *The Atlantic*, 14 August, 2015, www.theatlantic.com/entertainment/archive/2015/08/climate-fiction-margaret-atwood-literature/400112/.

17. Wright, Audrey. "The Top 20 Biggest Man-made Disasters." *A Medium Corporation*, retrieved on 16 May, 2019, medium.com/@audrey96928626/the-top-20-biggest-man-made-disasters-37f7f2a1ed2.

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